NEAR-SUN SOLAR WIND CONSEQUENCES OF SOLAR STRUCTURE AND DYNAMIC PHENOMENA OBSERVED BY SPACECRAFT RADIO SCINTILLATION MEASUREMENTS

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Scattering and scintillation measurements carried out with either natural radio sources or spacecraft radio signals represent essentially our only means for probing the solar wind inside 0.3 AU, a region that has yet to be explored by *in situ spacecraft* measurements. These measurements, which respond to electron density fluctuations and solar wind speed, bridge the gap between observations of the sun (including white-light coronagraph) and *in situ* plasma measurements beyond 0.3 AU. Recent work, based on near-continuous (high-time resolution) Doppler/phase scintillation observations using monochromatic spacecraft radio signals, reveals more extensive solar wind variations inside than beyond 0.3 AU. The purpose of this talk is to review the remote sensing capabilities of these measurements, and to summarize recent progress in relating the observed solar wind variations inside 0.3 AU to large-scale solar structure, solar dynamic phenomena, and *in situ* plasma and radio scintillation measurements of the solar wind beyond 0.3 AU.

Results obtained from current investigations of coronal streamers, interplanetary disturbances and their relationship to CMEs (observed by white-light coronagraphs) and events in soft X-ray images, will be presented and discussed. An unprecedented opportunity for simultaneous long-term SOHO white-light coronagraph and ICE S-band (13 cm) Doppler scintillation measurements off the west limb in 1996-1998 will also be described. The latter measurements are distinguished by the fact that they will probe the solar wind at near constant heliocentric distances inside 0.3 AU for prolonged periods.